

WHAT IS CLAIMED IS:

1. A nozzle configured to make injection molded components, comprising:

a nozzle body;

a melt channel running through the nozzle body configured to allow melt material flow;

a heater positioned within the nozzle body and adjacent one side of the melt channel; and

a thermally conductive device located inside the nozzle body, the thermally conductive device being configured to produce an even heat profile along an entire length of the melt channel.

2. The nozzle of claim 1, wherein the heater is integral with the thermally conductive device.

3. The nozzle of claim 1, further comprising a thermocouple.

4. The nozzle of claim 3, wherein the thermocouple is integral with the thermally conductive device.

5. The nozzle of claim 3, further comprising:

a control device configured to receive a signal from the thermocouple, wherein the heater is configured to be controlled via the control device based on the received signal from the thermocouple.

6. The nozzle of claim 3, wherein the thermally conductive device is located proximate one or more of the thermocouple and the heater.

7. The nozzle of claim 1, further comprising a plurality of melt channels.

8. The nozzle of claim 1, further comprising a plurality of heaters.
9. The nozzle of claim 1, further comprising a plurality of thermocouples.
10. The nozzle of claim 1, further comprising a plurality of thermally conductive devices.
11. The nozzle of claim 1, wherein the nozzle is a micro nozzle.
12. The nozzle of claim 1, wherein the nozzle is a flat micro nozzle.
13. The nozzle of claim 1, wherein the nozzle is thermal-gated.
14. The nozzle of claim 1, wherein the nozzle is valve gated.
15. The nozzle of claim 14, wherein a valve pin is inserted into a valve channel spaced from the melt channel.
16. The nozzle of claim 1, wherein the nozzle is edge gated.
17. The nozzle of claim 1, wherein the nozzle body is manufactured from at least one of tool steel, AreMet 100 alloy, and AreMet 300 alloy.
18. The nozzle of claim 1, wherein the thermally conductive device is manufactured from at least one of copper, brass, beryllium, and aluminum.

19. The nozzle of claim 1, wherein the heater is at least one of a film heater, a coil heater, and a cartridge heater.

20. The nozzle of claim 1, wherein the nozzle body is asymmetrical with respect to a longitudinal axis of the nozzle channel.

21. The nozzle of claim 1, further comprising removable nozzle tip.

22. The nozzle of claim 1, further comprising a nozzle seal portion.

23. A nozzle configured to produce injection molded components, comprising:

a nozzle body;

a melt channel located inside the nozzle body;

a heater located inside the nozzle body adjacent one side of the melt channel, said heater having an uneven profile with respect to the melt channel; and

a thermally conductive device located between the heater and the melt channel that produces an even heat profile along the melt channel.

24. The nozzle of claim 23, wherein the nozzle body comprises an asymmetrical nozzle body.

25. The nozzle of claim 23, wherein the nozzle comprises a flat nozzle.

26. An injection nozzle comprising:
a nozzle body made from a first material;
a melt channel located inside the nozzle body;
a heater located inside the nozzle body adjacent on side of the melt channel; and
a thermally conductive device located between the heater and the melt channel, the thermally conductive device being made of a second material which is more thermally conductive than the first material.
27. The nozzle of claim 26, wherein the nozzle body is asymmetrical.
28. The nozzle of claim 26, wherein the thermally conductive device is located along one side of the melt channel.
29. The nozzle of claim 26, wherein the nozzle comprises a flat nozzle.